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ABSTRACT

Critics of ability grouping argue that, although the system permits instructional modification according to pupil ability level, it has harmful social and academic consequences for students in lower groups. This investigation asks two questions about the effects of grouping: First, does a student's within-class group rank affect his or her learning when individual ability and instructional content are held statistically constant? Second, do teachers utilize grouping in ways that have varied effects on student learning? OLS (ordinary least squares) regression test was performed on data collected through observation and testing in 12 Chicago-area first-grade classrooms. The analysis revealed that group rank has a small effect on student learning in the fall but that the effect dissipates as the year passes. Two subgroups of classes were extracted from the sample, and the same analysis was performed again. In "egalitarian" classrooms, where teachers appeared to de-emphasize the distinctions between groups, group rank had no effect on learning at any time during the year. In "elitist" classrooms, the distinctions between groups were highly pronounced, and even with instructional content controlled, group rank had a sizable impact on learning. That effect increased as the year went by so that by May, students in a top group learned 74 more words than students in a middle group, even though both were taught the same number of words. The study thus suggests that the consequences of grouping are not inherently detrimental but rather depend on how grouping is employed. Teachers might be trained to de-emphasize the stratification system within the classroom even as they use it to organize instruction appropriately. (Author/RH)

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EGALITARIAN VERSUS ELITIST USE OF ABILITY GROUPING*

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ABSTRACT

Critics of ability grouping argue that although the system permits instructional modification according to pupil ability level, it has harmful social consequences for students in lower groups which affect their learning outcomes. This paper asks two questions about the effects of grouping. First, does a student's within-class group rank affect his learning, when individual ability and instructional content are statistically held constant? Second, do teachers utilize grouping in ways that have varied effects on student learning? OLS regression was performed on data collected through observation and testing in twelve Chicago area first grade classrooms. The analysis reveals that group rank has a small effect on student learning in the fall, but that the effect dissipates as the year passes. Two subgroups of classes were extracted from the sample, and the same analysis was performed. In "egalitarian" classrooms, where teachers appeared to deemphasize the distinctions between reading groups, group rank had no effect on learning at any time during the year. In "elitist" classrooms, the distinctions between groups were highly pronounced. In these classes, even with instructional content controlled, group rank had a sizeable impact on learning. That effect increased as the year went by so that by May, students in a top group would learn 74 more words than students in a middle group, even if both were taught the same number of words. This study suggests that the consequences of grouping are not inherently detrimental, but that they depend on how grouping is employed. Teachers might be trained to deemphasize the stratification system within the classroom, even as they use it to organize instruction appropriately.

Despite the widespread use of ability grouping in American classrooms, the practice remains a subject of great controversy. The debate has centered on questions concerning the outcomes of grouping. Critics argue that grouping has harmful social consequences for students placed in lower ability groups (Raup 1936; Heathers 1969; Rist 1970; Rosenbaum 1980). These social processes are believed to depress the learning outcomes of the students who are affected.

In this paper I introduce a model designed to detect the social effects of ability grouping on learning. The model controls for variation in individual aptitude, as do most modern studies of grouping (Yates 1966). It also takes into account differences in the instruction provided to different groups, a factor rarely considered by researchers. If students in lower groups are taught more slowly than other students, they may learn less than students in higher groups because of instructional differences rather than through social processes that impede their learning. I attempt to control for instructional effects on learning, as well as for the influence of prior ability, in order to discover whether students in higher groups learn more than others due to differences in the status and prestige accorded to members of differently ranked groups.

Yet this model does not go far enough, for it assumes that the social consequences of grouping are everywhere the same. In order to eliminate that assumption, I examine the relationship between grouping and learning in two kinds of classroom environments. In one type of environment, teachers place great stress on the

distinctions between reading groups. In the other, distinctions between groups are intentionally blurred. I expect the social burden on students in low groups to be much heavier when group differences are publicly emphasized.

I. Instruction and the Effects of Ability Grouping

The results reported in this section are analyzed in greater detail in another work (Gamoran 1984). The chief purposes of this section are 1)to stress the importance and policy implications of instruction as a mechanism through which grouping affects learning, and 2)to serve as a backdrop for the main body of this paper, which will examine the same variables in different classroom environments.

Despite half a century of investigation, researchers have not reached a conclusion about whether homogeneous ability grouping leads to student outcomes different from heterogeneous grouping. The problem, explain a large number of reviewers, is that no consistent achievement differences appear in the absence of instructional differences (Miller and Otto 1930; Cornell 1936; Ekstrom 1961; NEA 1968; Heathers 1969). The studies these reviewers read often acknowledge this problem themselves. Researchers who fail to discover expected achievement differences between groups complain that there were no instructional differences (Cook 1924; French 1959; Goldberg, Passow, and Justman 1966). When a researcher who does not anticipate differences uncovers achievement scores that favor homogeneous grouping, he may blame it on instructional differences (Douglas 1964). Clearly, if the groups within a class

vary in the instruction they receive, they may also vary in the achievement of their students.

Because reviewers have found that ability grouping is not consistently related to achievement when instruction is unmeasured, it makes good sense to include instruction in a study of the effects of grouping. Dahllof (1971), Barr (1973-74), Harnischfeger and Wiley (1976), and Bossert (1979) propose models of learning that include measures of both pupil organization and instruction. Moreover, Barr and Dreeben (1983) find that the quantity of instruction first graders receive is strongly related to their learning.

Yet after instruction has been taken into account, students in higher groups might still maintain an edge in achievement. Ability grouping stratifies the classroom into a set of ranked groups, and status differences are associated with the rank ordering (Rosenbaum 1980). The status of a group may affect the learning of its members. Seeing themselves as an elite, high group students may be motivated to greater learning, while students in low groups may lose self-esteem and perform poorly in school (Heathers 1969; Rosenbaum 1980; Gamoran 1984). These motivational constraints may operate independently of the effects of instruction on learning. I attempt to detect the influence of social factors indirectly, by noting the effects of a student's reading group level on his learning after controlling for instruction and background factors.

If students in higher level reading groups still achieve more than students in lower groups even after initial ability and instructional factors are held constant, then the critics of ability grouping will have a stronger case. Such a finding would indicate

that students' social positions within the classroom affect their learning independently of their individual capabilities and of the instruction they receive. Policy makers would be forced to evaluate the equity of a program that allows some students to make greater gains than others on the basis of social processes rather than from instructional design or individual capacity.

However, if the allocation of instruction to reading groups entirely explains any learning outcomes that vary by group level, then the advocates of ability grouping will stand on firmer ground. If instruction is the sole mechanism that differentiates learning by reading group, then grouping does not engender the deleterious social consequences for students in low groups.

Such a finding would not necessarily indicate that grouping is an inherently equitable procedure, for I do not address the issue of whether instruction is appropriately allocated.* The scope of this paper is limited to asking whether membership in a higher status group permits one to learn more, apart from the benefits of added instruction.

Procedures

The data were obtained during 1981-82 from six schools in three Chicago-area school districts, selected from communities that varied

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* Some authors argue that the practice of differentiating instruction is itself discriminatory (Rosenbaum 1976). Others see the method as necessary for appropriate teaching (eg. Alberty and Brim 1936). This issue has yet to be empirically evaluated.
Moreover, because ability groups are never perfectly homogeneous, there must always be some students within each group for whom the instruction is less appropriate than for others. Presumably, however, the level of instruction fits more students more closely than if the class were taught as a whole.

in their socioeconomic levels. Students from two first grade classrooms in each school participated in the study, for a total of twelve first grade classrooms. The 260 students who comprise the initial sample decline to 243 by the year's end because some students moved away. Students who entered the schools in mid-year, or who were not members of reading groups, were not included in the sample.

Researchers observed each of the twelve classrooms for a full day twelve times during the year at approximately three week intervals. Information on the social and instructional organization of each class was recorded, and school records and teacher interviews provided student background data. In addition, students completed an aptitude test in September, and were tested on their learning in December, March, and May.

The data were analyzed in three cumulative waves: from September to December, September to March, and September to May.

Background Variables

Age was recorded in months as of Sptember 1981, when students entered first grade. **Gender** was scored 0 for boys, 1 for girls.

SES was estimated using a nine-point scale for parental occupation.* Missing values were assigned the class mean. In one

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* The following scale was used: 9=professional, technical, kindred; 8=managers, officials, proprietors - large; 7=higher level white collar, clerical, clergy, semi-professions; 6=managers, officials, proprietors- small; 5=sales; 4=craftsmen, foremen, kindred, public service, lower white collar; 3=operatives, semi-skilled; 2=laborers,unskilled, domestic service; 1=unemployed, welfare recipients. Intercoder reliability of assigning scores to occupations was calculated at 83 percent.

school, located in the poorest and economically most homogeneous community, data on parental occupation was unavailable for most students. SES for these students was estimated using census tract data.

Aptitude prior to first grade was estimated by combining scores from two tests. In the first, the Barr-Kibby Word Learning Task (Barr and Kibby 1981), testers taught several words and phonics concepts to groups of six students. The students were then tested on their immediate learning, and on their retention two days later. The second test, the Wide Range Achievement Test (WRAT), simply required students to read a list of words aloud. This measure was used to remove a "ceiling" that may have existed in the first test, because students who could read a small amount prior to first grade might score at the top of the first test. No student came close to reading all the WRAT words correctly.

Grouping

Each of the twelve classes was divided into small groups for reading. Groups with higher mean aptitudes proceeded through the curricular materials at a faster pace, and students in higher groups learned more than other students on the average, even with initial ability held constant (Gamoran 1984).

In order to isolate instructional from social effects of grouping, I created a scale that quantifies the relative rankings of reading groups within each classroom. The rank of each group could then be measured separately from the instruction each group received. By including students from all twelve classrooms in one data set, we find sufficient independent variation between relative

group rank and instructional allocation to measure the independent effects of these two factors on learning.

To assign values to the rank of each reading group, I constructed a scale and applied it to all the classrooms. Because six was the gratest number of initial groups in any classroom, I divided the scale into six and scored the groups in that classroom at 1, 2, 3, 4, 5, and 6. Then I applied the same scale to the other classrooms, recalibrating it where necessary to fit alternate grouping arrangements. For classes with three groups (the most common formation), the scale was divided into three sections with the groups scored at the midpoint of each section: 1.5, 3.5, and 5.5. Similarly, the groups in classes containing four groups were scored 1.25, 2.75, 4.25, and 5.75, while five groups in a class were rated 1.1, 2.3, 3.5, 4.7, and 5.9.* When groups combined later in the school year, or new groups formed as splinters from existing groups, I did not rescore the entire class, but only the portion of the class involved in the modification.

Each student's group rank was recorded twelve times during the school year. The variable **Group Rank** was computed by summing the student's scores and dividing by four for the first measurement wave (September - December), summing and dividing by eight for the second wave (September - March), and summing and dividing by twelve for the full year measurement (September - May). Thus Group Rank was measured cumulatively, corresponding to the measurement of instruction, as described in the next section. This ranking procedure takes into account students who move from one group to

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* A discussion of the assumptions underlying the grouping scale may be found in Gamoran (1984).

another by raising or lowering the student's score in accordance with his or her mobility.

Instructional Variables

First grade reading instruction centers on the controlled introduction of words (Barr and Dreeben 1983). Teachers introduce a set of new words, and when students have mastered the words, they read stories containing them. Phonics skills are also taught as a supplement to the whole word learning. Following Barr (1973-74) and Barr and Dreeben (1983) I measured instruction as the number of **Words Taught** and **Phonics Taught** between testing periods.

Barr and Dreeben (1983) argue that the instructional content a first grader works with is not just the new words introduced over the previous few weeks, but all the words he or she is reading in the textbook. Words Taught and Phonics Taught are therefore measured cumulatively, so that the fall measures include items introduced by December, the winter measures include all words or phonics taught from the beginning of the year until March, and the spring scores count items taught over the course of the entire year.

Reasoning that the more days a student was absent from school the less likely he would be to learn the words and phonics his group was taught, I constructed the variable **Absences** as the number of days a student was absent from September to December, September to March, and September to May.

Tests of Learning

In December a separate test was constructed for each reading group in each class. Each test consisted of a sample of the words

taught to that particular group. Students read the sample of words aloud, and the proportion they read correctly, multiplied by the number of words from which the sample was drawn, constitutes a measure of the number of **Words Learned** by each student. Similar tests were constructed and administered in March and May, so that there are three measures of Words Learned.

Results

If ability grouping has harmful social consequences that disturb the learning of students in low groups, then the rank of a student's reading group should appear to affect his learning

TABLE I - OLS regressions for the Full Sample.
Dependent Variable - Words_Learned

		FALL	WINTER	SPRING
Intercept		-25.49	45.81	23.05
Age	B	-.00	-.04	-.04
	b	-.05	-1.27***	-1.77*
	(s.e.)	(.28)	(.61)	(1.03)
Gender		.02	.02	.01
		2.83	4.96	5.42
		(2.46)	(5.55)	(9.44)
SES		.02	.00	.03
		.75	.01	2.79
		(.59)	(1.29)	(2.26)
Aptitude		.12	.12	.16
		.78****	1.47****	2.94****
		(.14)	(.32)	(.54)
Group Rank		.05	.04	.01
		2.88***	3.81	1.70
		(1.01)	(2.44)	(4.07)
Absences		-.02	-.02	-.02
		-.37	-.67	-.70
		(.39)	(.50)	(.71)
Words Taught		.79	.75	.70
		.75****	.74****	.74****
		(.02)	(.03)	(.04)
Phonics Taught		.08	.14	.15
		.33****	.86****	1.22****
		(.09)	(.18)	(.24)
R^2(unadjusted)		.94	.93	.90
n		260	248	243

*p<.10 **p<.05 ***p<.01 ****p<.001

Note - B is the standardized regression coefficient, b is the unstandardized coefficient, and (s.e.) is the standard error.

independently of his initial ability and the instruction he receives. Table I presents the OLS regressions used to test this formulation.

Group Rank has a small, significant effect on learning in the fall; the unstandardized regression coefficient is just under three words. In a class with three reading groups, where four points on our Group Rank scale separate the highest from the lowest group, high group students learn nearly twelve more words than students in the low group, in addition to the benefits of being taught more words. This effect, which is rather small to begin with, appears to dissipate as the year passes. The coefficient for Group Rank is not significant in the winter or spring, and although more and more words are being taught and learned, the Group Rank coefficient is smallest in the spring.

Words Taught clearly exerts the most powerful influence on Words Learned, with standardized coefficients of .79, .74, and .70 in the fall, winter and spring, respectively. The unstandardized coefficients remain remarkably stable as the year progresses. On the average, a student will learn about three quarters of the words he or she is taught, other factors being equal. Phonics Taught also contributes to learning, and its importance appears to increase over the course of the year.

Of the background variables, initial aptitude consistently affects learning. The negative coefficient for Age may be related to the fact that the oldest students are those who are repeating first grade.

I study these variables and their interrelationships more intensely in another work, where I also speculate on reasons why the

independent effects of grouping appear only in the fall (Gamoran 1984). Relevant here is the central finding that by the end of the school year, what students learn depends on what they are taught, rather than on the rank of their reading group. With this as our baseline result, we are prepared to reexamine these relationships under conditions of different classroom environments.

II. Grouping in Egalitarian and Elitist Classrooms

Analysis of twelve first grade classes reveals that the slight effect of group rank on word learning fades by the end of the year. It is possible, however, that some classrooms are more intensely stratified than others, and that group rank has more influence in such environments. When distinctions between reading groups are more heavily emphasized, students may be more aware of the status associated with each group, and group placement may exert a greater influence on learning. The opposite case is also worthy of study: classes in which group differences are deemphasized should exhibit a smaller or no group rank effect.

Categorizing classrooms proved to be a difficult task. The classrooms had not been included in the study on the basis of criteria relevant to this issue, nor were teachers advised on how to treat their readig groups at any time. To avoid the trap of looking at one narrow aspect of classroom life and using it as the basis for a dichotomy, I selected a few specific features of classroom organization and atmosphere that indicate the extent to which group distinctions are stressed. I studied all twelve classrooms in detail, attending to three phenomena in particular:

1)Teacher ideology - What did the teacher say about her reading groups in interviews? What remarks did the teacher make to students and parents about the groups? By what names did the teacher refer to the groups?

2)Discreteness of groups: Aptitude - Are group differences accentuated by sharp aptitude distinctions, or do reading groups overlap in the ability levels of their members?

3)Discreteness of groups: Instruction - Did the teacher teach two or more groups the same number of words, or are there wide gaps between groups?

Classes in which group distinctions were blurred by at least two of these three factors I call "Egalitarian Classrooms." I identified three such classrooms. I also found three classes in which the stratification system seemed to be intensified. I call these "Elitist Classrooms" because they favor students in higher groups at the expense of students in lower groups. Six classrooms did not fit into either category, because conditions were not consistently extreme in either direction.

Because the classes selected for the two subsamples did not always meet every criterion, this analysis must be seen as somewhat speculative. Indeed, there are two inconsistencies in the classification scheme. I categorize class 1 as Elitist based on the attitudes of its teacher and the aptitude distribution of its groups, despite the fact that its groups were similar in terms of instructional content. Although I include class 2 in the Egalitarian sample because of its aptitude distribution and general teacher ideology, the teacher in class 2 named her groups by number in order, a factor which may call attention to the differences between groups. These inconsistencies highlight the importance of using more than one factor to characterize classroom life.

Moreover, I make no attempt to analyze the interconnections

between the three criteria. Some classrooms may contain groups that are distinct instructionally and in terms of aptitude because of the teacher's ideology, but there may be other factors constraining the formation of groups that are unrelated to the teacher's preferences (Barr and Dreeben 1983; Hallinan and Sorenson 1983).

With these qualifications in mind, we can see that the subsamples differ in their social and organizational characteristics. The mean aptitude of every reading group in the Elitist classrooms was separated from adjacent groups by at least one standard deviation during the fall, while only half the gaps between groups were that large in Egalitarian classrooms. In two of the Elitist classrooms in the fall, students in one group were taught sixty percent or less of the words taught to the next higher group, while the same proportions averaged seventy, seventy-nine, and ninety-two percent in Egalitarian classrooms. Moreover, each Egalitarian classroom contained at least one pair of reading groups receiving identical instruction. These differences between the subsamples indicate the more pronounced nature of the distinctions between groups in Elitist classrooms. Appendix II contains data on the instructional and aptitude characteristics of all twelve classrooms, as well as a list of the criteria met by each class.

The most striking differences between the subsamples appear in the area I have called teacher ideology, as the class descriptions reveal (see below). Each class that appeared extreme in teacher ideology in one direction or the other also met at least one of the other criteria in the same direction. It is important to recognize that the classrooms were divided **a priori**; the regression analyses were not conducted until after the classrooms had been selected.

Egalitarian Classrooms

Class 2

Class 2 began the year with three groups and added a fourth in January after some new students had entered the class. The teacher consistently tried to deemphasize the stratification system. She told the observer, the students, and parents that the second and third groups were equivalent. Occasionally the two groups read from their basal readers together. The third group actually had a higher mean aptitude than the second, and both covered words and phonics at the same pace. The teacher was observed telling children they could move between groups, though they rarely did.

It should be noted, however, that Teacher 2 named her groups 1, 2, 3, and 4 in order.

Table 11 - Description of Egalitarian Classrooms.

Class	Ideology	Group	December* $\bar{x}$ Aptit.	Words Taught Dec.	Mar.	May
2	Teacher claimed children could move between groups; groups 2 & 3 called equivalent.	1	45.30	229	429	657
		2	23.05	90	229	412
		3	25.81	90	229	412
		4	**		90	190
9	Teacher tried to get lower groups caught up with highest to equalize preparation for second grade.	1	42.24	103	327	614
		2	28.70	86	198	513
		3	23.10	86	198	
11	Groups 1 & 2 called equivalent; each group met with others for occasional lessons.	1	38.63	214	614	806
		2	27.57	225	576	806
		3	25.05	120	348	623

Class 7

There was some overlap in the aptitude levels of the three groups in this class, and in March the teacher combined the two lower groups into one group. The teacher was determined to make all

* Initial aptitude, for each group as it existed in December.
** Group formed in January; aptitude unmeasured.

of her students equally prepared for second grade by having each group finish all the first grade materials.

To the observer, students did not appear to identify strongly with their reading groups as in other classes.

Class_11

This teacher also appeared to use ability grouping in an egalitarian manner. She claimed that her two top groups were equivalent, and although the aptitude test reveals significant differences between the two, they were taught at the same pace for basal reading, with the second group doing more phonics work. The second and third groups, on the other hand, while instructionally different, were closer in aptitude level.

At times different groups met together to read a story. Even low group students would sometimes join others to hear a story they would cover later in the year.

Results

Unlike the full sample of twelve classes, Group Rank does not affect Words Learned, even in the fall. Words Taught appears much more powerful in the fall and winter, but similar in the spring, with unstandardized coefficients of .97, .91, and .72, compared with .75, .74, and .74 in the full sample (compare Table 11 with Table 1). Phonics does not contribute to learning until May when, comparable to the full model, its coefficient is 1.03. The effect of Aptitude is just over half of what it is in the twelve classes in December, more similar by March, and somewhat greater by May.

TABLE II - OLS regression for the full model in Egalitarian Classrooms - Fall, Winter, and Spring.
Dependent Variable - Words Learned

		FALL	WINTER	SPRING
Intercept		23.53	75.09	-35.39
Age	B	-.04	-.04	-.03
	b	-.63**	-1.46	-1.47
	(s.e.)	(.30)	(1.00)	(2.65)
Gender		-.01	.01	.03
		-1.12	1.63	10.19
		(2.17)	(7.47)	(19.76)
SES		.03	.01	.08
		.99*	.38	6.95
		(.53)	(1.96)	(5.07)
Aptitude		.08	.09	.24
		.45***	1.15**	3.58***
		(.13)	(.44)	(1.22)
Group Rank		-.01	.02	.06
		-.44	2.46	7.10
		(.96)	(3.60)	(10.62)
Absences		.01	-.01	-.02
		.20	-.28	-.96
		(.57)	(1.09)	(2.40)
Words Taught		.96	.95	.65
		.97****	.91****	.72****
		(.02)	(.04)	(.11)
Phonics Taught		.01	-.01	.17
		.04	-.05	1.03*
		(.07)	(.23)	(.55)
R^2(unadjusted)		.99	.97	.82
n		65	64	64

*p<.10 **p<.05 ***p<.01 ****p<.001

Elitist Classrooms

Class_1

Teacher 1 stressed the classroom stratification system by frequently commenting to the entire class about what was expected from members of different groups. In addition, groups were rather distinct in terms of aptitude.

In class 1, group mean SES varied directly with reading group level. The observer believed that teacher grouping decisions were partly based on SES. This classroom reminds one of that studied by Rist (1970) which has had such an impact on beliefs about grouping in the educational literature. Rist reported discrimination against poor children in a kindergarten, by a teacher who gave most of her attention to a favored group of students. Yet it now appears that such elitism is but one way in which grouping can be utilized.

Table III - Group Mean SES (December) in Class 1.

Group 1: 8.18 Group 2: 7.16 Group 3: 6.73 Group 4: 5.50

Still, we should note that groups 1 and 2, and by May group 3 as well, are instructionally similar.

Class_3

In Class 3 the two top groups were called "first group" and "second group." The teacher also referred to the groups as "one" through "four," and after March "five," in order. These naming conventions call attention to the stratified nature of the grouping system. The groups were also quite distinct in terms of how many words each was taught.

Teacher 3 followed the same procedure for meeting with the first two groups almost every day.* Group 1 always met first, and

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* On one observed occasion, the first two groups did not meet, and on one occasion (which did not occur until June) group 2 met first.

group 2 always met second, both in the morning. The lower groups were usually called up in the afternoon.

Class 8

In many classes each reading group selects its own name. Such was not the case in Class 8, where the teacher assigned names to the reading groups. Teacher 8 was partial to Peanuts characters, and her favorite was clearly Snoopy. She had a large picture of Snoopy on her desk, and other Snoopy paraphenalia. Thus when the top group was named "Snoopy's Pals," the message was not likely to be lost on the students. The second group was called "Linus' Friends," and the third - the eternal loser, "Charlie Brown." When a fourth group was added in February, it was named for "Woodstock," the tiny bird. It seems quite likely that the symbolic naming system served to emphasize which group was favored in the classroom, and which was not.

Furthermore, the reading groups in Class 8 were distinct both in terms of aptitude levels and Words Taught.

Table IV - Description of Elitist Classrooms.

Class	Ideology	Group	December* $\bar{x}$ Aptit.	Words Taught Dec.	Mar.	May
1	Teacher publicized expectations stratified by group level; Group placement probably tied to SES.	1	46.29	210	353	429
		2	27.56	210	353	429
		3	20.50	190	325	429
		4	13.88	150	280	391
		5	***		150	331
3	Groups called by number in order. High group always met with the teacher first; second group always met second; others in the afternoon.	1	19.36	71	227	381
		2	12.25	40	156	265
		3	7.00	22	95	147
		4	**		45	86
		5	***		22	31
8	Group names had symbolic meaning favoring higher groups.	1	24.79	87	238	444
		2	15.68	37	154	399
		3	7.06	29	101	186

* Initial aptitude, for each group as it existed in December.
** Group formed in January.
*** Group formed in February.

Results

The the effect of Group Rank on Words Learned is strikingly different in the Elitist classes from both the full sample and the Egalitarian classes. The unstandardized regression coefficient for Group Rank is 7.72 in the fall, more than twice the value found for the sample of all twelve classes. Furthermore, rather than waning, the influence of Group Rank increases with time. By March each point of Group Rank is worth 20.69 words, and by May the value is 36.82. In a class with three reading groups (scored 1.5, 3.5, and 5.5 on our Group Rank scale), students in the high group would learn 74 more words than students in the middle group, and 148 more words than students in the bottom group, holding constant their aptitudes and what they are taught. When teachers intensify the classroom stratification system, grouping has an effect on student learning that goes beyond differences in instructional content.

The effect of Words Taught appears considerably smaller in the Elitist classrooms - an unstandardized coefficient of only .49 in the fall, as compared with .76 in the full sample and .97 in the Egalitarian classrooms. Then the effect of Words Taught disappears entirely in the winter and spring. At the same time, the influence of Phonics shows its now familiar pattern of increasing during the year. Yet here it increases to 2.25, about twice that of the other samples.

It is of course incorrect to conclude that the number of words a student is taught has no effect on how many he learns in these classes. By definition, the number taught sets an upper bound on the

TABLE V - OLS regression for the full model in Elitist Classrooms - Fall, Winter, and Spring. Dependent Variable - Words Learned

		FALL	WINTER	SPRING
Intercept		-67.26	-1.32	144.61
Age	B	.01	-.02	-.07
	b	.26	-.37	-2.58
	(s.e.)	(.91)	(1.42)	(3.52)
Gender		.08	.07	-.03
		10.26	12.13	-7.23
		(6.41)	(9.84)	(24.47)
SES		.13	.24	.19
		3.36	7.91**	9.08
		(2.25)	(3.19)	(6.53)
Aptitude		.29	.44	.26
		1.58****	3.14****	3.10+
		(.45)	(.70)	(1.85)
Group Rank		.16	.32	.36
		7.72**	20.69****	36.82**
		(2.91)	(4.99)	(14.59)
Absences		-.02	-.08	.03
		-.49	-1.39	.71
		(1.02)	(.91)	(1.95)
Words Taught		.54	.002	-.07
		.49****	.002	-.09
		(.07)	(.08)	(.20)
Phonics Taught		-.04	.12	.46
		-.34	.67	2.25****
		(.77)	(.46)	(.59)
R^2(unadjusted)		.89	.87	.67
n		63	60	56

+p<.102 *p<.10 **p<.05 ***p<.01 ****p<.001

number learned in this study. Words Taught is a limiting but apparently not a sufficient condition for word learning in Classes 1, 3, and 8.*

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* The mean aptitude of students in the egalitarian sample, at 31.4, is a full standard deviation above that of students in elitist classrooms at 20.6 (see Appendix I). It seemed possible that the differing results might be due to the aptitude differences. (I am indebted to Professor Erik O. Wright for raising this issue.) To test for this possibility, I analyzed classes 4, 5, and 6; classes included in neither subsample and whose mean aptitude was 17.7, even lower than the elitist subsample. The regressions revealed no Group Rank effect. Low aptitude can be ruled out as the source of the grouping effect in the elitist subsample.

Locating the Effect of Grouping

We have learned that in an intensely stratified environment, the rank of a student's reading group affects his learning even when instructional factors are controlled. Yet a crucial question must still be answered before this finding can be of aid to educators and policy makers. Which students are affected by their status in the classroom? Perhaps the low group students learn as much as they would in any classroom, while students in higher groups believe themselves to be an elite and are motivated to greater achievement. Alternatively, top group students might learn no more than in other classroom environments, while the achievement of students in lower groups is depressed because these students are made to feel less worthy. Some combination of these two processes could also produce the effects we discovered.

It is possible to judge which students are being affected by the intensification of the grouping system by calculating the expected learning of the "average" student in the egalitarian, elitist, and full samples. The regression equations from each of the three analyses were used to compute Words Learned for a student who would be at the full sample mean on every characteristic except Group Rank. Each of the three equations was used three times: once with Group Rank fixed as a low group score, once with Group Rank as a middle group score , and finally fixed as a high group score. The nine estimations were computed for the fall and then for the winter and spring as well.

To the extent that the predicted Words Learned of a high group student is greater in the Elitist sample than in the full sample,

we can say that high group students are pushed forward in Elitist classrooms. To the extent that low group students learn less in Elitist classrooms than in the other samples, we can state that low group students are adversely affected in Elitist classrooms.

For this exercise we have fixed instruction at the full sample means, because we wish to illustrate the effect of Group Rank isolated from other factors. In any real classroom, instruction would be differentially allocated to reading groups, so the gap between reading groups would actually be much greater than is represented here.

Table VI - Predicted **Words Learned** with Group Rank varied, other factors fixed.

Group	FALL			WINTER			SPRING		
Rank	Full	Egalit.	Elit. *	Full	Egalit.	Elit. *	Full	Egalit.	Elit. *
HIGH	96.9	93.2	96.3	238.8	247.6	227.9	377.6	388.8	369.4
MID	91.2	94.1	80.9	231.2	242.7	186.5	374.2	374.6	295.7
LOW	85.4	95.0	65.4	223.6	237.8	145.1	371.2	360.4	222.1

* denotes significant differences between groups in the same sample, due to significant regression coefficients.

Table VI reveals that high group students in the Elitist sample keep pace with students in the other samples, but students in middle and low groups are adversely affected by learning in Elitist classrooms. The values in Table VI are graphically illustrated in Figure 1.

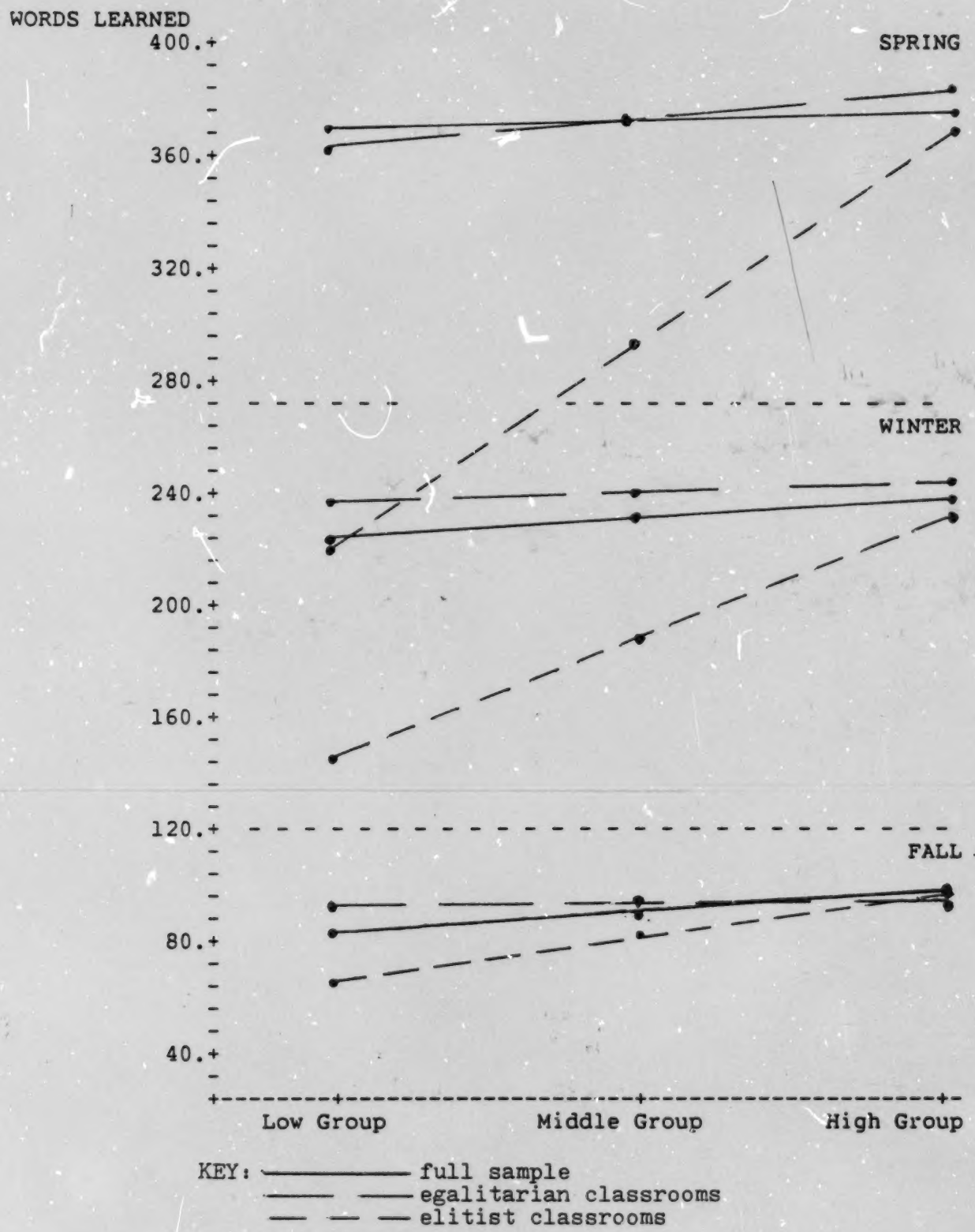

Figure I - Words Learned by the "average" student in low, middle, and high reading groups.

Figure 1 dramatically reveals that it is the middle and low group students who are affected in the Elitist classrooms. The classroom environment makes little difference to students in high groups, who learn about 95 words in the fall, 240 by winter, and 380 by spring whichever sample we look at. Students in the middle and low groups fall behind in the fall and drop back even further in the winter and spring in the Elitist classrooms. By the spring, the "average" child in a middle group would learn only 296 words, and a low group student just 222 words. Minimizing the effects of reading group rank on learning in first grade will not harm students in high groups, but should prevent students in lower groups from falling behind unnecessarily.

Conclusions

The preceding analysis suggests that the outcomes of ability grouping are not inherently detrimental, for they appear to depend upon how grouping is utilized. On the average, student learning is more likely to be affected by the content of the instruction teachers provide than by the students' social positions within the classroom. Yet under certain circumstances, learning is greatly constrained by the social consequences of the classroom stratification system, and students in low reading groups appear to suffer the heaviest loss.

To what extent can a teacher control the conditions of the classroom environment? Structural constraints may limit possibilities of obscuring group distinctions through the distribution of aptitude and instruction. Hallinan and Sorenson (1983) note that the tendency toward three groups of equal size can cause the composition of groups to vary according to the composition of the class. Unless

the pool of students within a class is relatively homogeneous to begin with, it may not be possible to create groups that are similar to one another and still reasonably narrow in their ranges of individual aptitudes. Likewise, allocating similar instruction to more than one group may only be appropriate when the composition of the class permits creating groups that are similar in aptitude.

However, what I have called "teacher ideology" may be less affected by structural constraints and class composition. Teachers can select, or allow students to choose, names for reading groups that do not reflect the relative ranks of the groups. Groups of different levels can occasionally meet together, as enacted by two of the egalitarian teachers. Finally, there is no reason for teachers to announce their expectations for stratified reading groups to the entire class, as did two of the teachers in this study whom I have labeled elitist.

Because the ideological factor may be both the most controllable and the most important difference between egalitarian and elitist teachers, teacher training institutes should alert future teachers to the potential consequences of their attitudes and actions. Recognizing the social and cognitive outcomes of deemphasizing the classroom stratification system, teachers may be able to prevent ability grouping from harming the learning of students in low groups, at the same time as they use grouping to organize instruction appropriately.

Despite these policy implications, this study has important limitations. Because the connections between structural constraints, class composition, and teacher preferences remain unexplored, the implications suggested here must be somewhat tentative. A fuller study of the creation and use of ability groups

would consider these ties more closely.

While in general I suggest that a child's group rank need not affect his learning through social processes, that does not mean that group rank has no social effects at all. A student's self-esteem and general attitudes may be affected without ultimately affecting learning. Such an effect would go undetected in this study. The social consequences of grouping are worthy of investigation in their own right, even if they do not generally affect cognitive learning.

This study suggests that the classroom environment exerts a major influence on the relationship between grouping and learning. However, I have not conclusively demonstrated that the non-elitist teachers make optimal use of ability grouping. The assumption that teachers allocate instruction appropriately remains untested. The question of appropriate instructional allocation deserves study in the future because of the large influence of instruction on learning in small groups.

APPENDIX I - MEANS, STANDARD DEVIATIONS, AND CORRELATIONS

FULL SAMPLE

Table A - Correlation matrix, means, and standard deviations of variables - Fall (September to December).

	1	2	3	4	5	6	7	8	9
1. Age		-.12	.04	.09	.10	.06	.21	.18	.19
2. Gender			.11	.00	.10	-.04	.12	.05	.13
3. SES				.48	.16	-.31	.57	.42	.58
4. Aptitude					.54	-.22	.64	.54	.71
5. Group Rank						-.15	.40	.20	.46
6. Absences							-.20	-.23	-.24
7. Words Taught								.70	.96
8. Phonics Taught									.72
9. Words Learned									
Mean(n=260)	75.24	.46	5.05	23.80	3.61	2.59	106.0	24.71	91.89
S.D.	4.47	.50	2.65	12.59	1.48	3.29	82.90	18.59	79.15

Table B - Correlation matrix, means, and standard deviations of variables - Winter (September to March).

	1	2	3	4	5	6	7	8	9
1. Age		-.12	.04	.07	.05	.04	.13	.14	.09
2. Gender			.11	.02	.12	-.02	.16	.09	.16
3. SES				.49	.20	-.31	.55	.45	.55
4. Aptitude					.58	-.26	.63	.53	.69
5. Group Rank						-.21	.46	.23	.48
6. Absences							-.27	-.29	-.31
7. Words Taught								.79	.95
8. Phonics Taught									.80
9. Words Learned									
Mean(n=248)	75.29	.46	5.18	23.95	3.72	5.55	266.3	42.79	230.51
S.D.	4.51	.50	2.64	12.56	1.47	5.81	161.9	25.15	158.20

Table C - Correlation matrix, means, and standard deviations of variables - Spring (September to May)

	1	2	3	4	5	6	7	8	9
1. Age		-.12	.04	.06	.02	.01	.12	.13	.07
2. Gender			.10	-.00	.12	-.01	.14	.10	.13
3. SES				.48	.19	-.28	.59	.37	.59
4. Aptitude					.57	-.24	.60	.38	.66
5. Group Rank						-.22	.43	.19	.45
6. Absences							-.27	-.22	-.29
7. Words Taught								.70	.93
8. Phonics Taught									.72
9. Words Learned									
Mean(n=243)	75.26	.47	5.21	24.06	3.81	7.70	438.4	58.63	376.13
S.D.	4.51	.50	2.64	12.28	1.44	6.84	210.5	27.54	222.60

Note - Coefficients greater than .12 are significant at $p<.05$.

EGALITARIAN CLASSROOMS

Table D - Correlation matrix, means, and standard deviations of variables - Eall (September to December).

	1	2	3	4	5	6	7	8	9
1. Age		-.12	.03	.06	.18	-.00	.22	.38	.18
2. Gender			.08	-.02	.18	-.22	.18	.08	.16
3. SES				-.04	.04	-.16	-.01	-.23	.02
4. Aptitude					.67	-.10	.49	.23	.54
5. Group Rank						-.13	.55	.34	.57
6. Absences							-.04	-.03	-.04
7. Words Taught								.52	.99
8. Phonics Taught									.50
9. Words Learned									
Mean (n=65)	74.98	.43	6.93	31.42	3.62	1.38	140.5	33.28	132.67
S.D.	3.70	.50	1.99	10.80	1.55	1.80	62.92	17.50	63.22

Table E - Correlation matrix, means, and standard deviations of variables - Winter (September to March).

	1	2	3	4	5	6	7	8	9
1. Age		-.11	.04	.05	.11	.02	.24	.35	.19
2. Gender			.04	-.01	.18	-.34	.22	.10	.22
3. SES				-.00	.07	-.17	-.25	-.32	-.23
4. Aptitude					.68	-.05	.38	.17	.46
5. Group Rank						-.24	.50	.20	.55
6. Absences							-.17	-.13	-.18
7. Words Taught								.72	.98
8. Phonics Taught									.68
9. Words Learned									
Mean (n=64)	74.96	.44	7.00	31.25	3.85	3.76	361.5	54.39	339.25
S.D.	3.73	.50	1.91	10.81	1.46	3.42	150.4	23.54	144.06

Table F - Correlation matrix, means, and standard deviations of variables - Spring (September to May).

	1	2	3	4	5	6	7	8	9
1. Age		-.11	.04	.05	.05	.03	.26	.33	.21
2. Gender			.04	-.01	.21	-.28	.16	.04	.17
3. SES				-.00	.06	-.05	-.22	-.29	-.10
4. Aptitude					.69	-.04	.39	.05	.55
5. Group Rank						-.23	.45	-.01	.54
6. Absences							-.19	.05	-.18
7. Words Taught								.66	.87
8. Phonics Taught									.58
9. Words Learned									
Mean (n=64)	74.96	.44	7.00	31.25	3.92	6.13	590.5	66.61	532.43
S.D.	3.73	.50	1.91	10.81	1.38	4.15	146.4	26.10	160.24

Note - Coefficients greater than .24 are significant at $p<.05$.

ELITIST CLASSROOMS

Table G - Correlation matrix, means, and standard deviations of variables - Fall (September to December).

	1	2	3	4	5	6	7	8	9
1. Age		-.11	.17	.35	.14	.06	.23	.30	.26
2. Gender			.25	.11	-.01	-.13	.14	.21	.21
3. SES				.59	.14	-.18	.76	.83	.73
4. Aptitude					.61	-.14	.69	.61	.83
5. Group Rank						-.19	.30	.23	.52
6. Absences							-.12	-.08	-.19
7. Words Taught								.81	.88
8. Phonics Taught									.74
9. Words Learned									
Mean (n=63)	74.91	.51	4.68	20.64	3.82	2.78	108.5	11.03	82.75
S.D.	3.80	.50	2.73	12.58	1.46	3.13	76.67	8.51	68.55

Table H - Correlation matrix, means, and standard deviations of variables - Winter (September to March).

	1	2	3	4	5	6	7	8	9
1. Age		-.10	.18	.34	.08	.07	.20	.28	.22
2. Gender			.27	.14	.06	-.09	.13	.24	.25
3. SES				.58	.18	-.20	.70	.74	.67
4. Aptitude					.66	-.18	.71	.50	.86
5. Group Rank						-.16	.50	.22	.69
6. Absences							-.11	-.14	-.29
7. Words Taught								.63	.73
8. Phonics Taught									.61
9. Words Learned									
Mean (n=60)	75.00	.50	4.78	21.09	3.94	6.14	236.7	23.33	170.26
S.D.	3.78	.50	2.75	12.71	1.41	5.35	100.1	16.09	91.47

Table I - Correlation matrix, means, and standard deviations of variables - Spring (September to May).

	1	2	3	4	5	6	7	8	9
1. Age		-.12	.17	.32	.03	.03	.20	.21	.14
2. Gender			.27	.08	.05	-.11	.12	.25	.17
3. SES				.57	.15	-.24	.56	.46	.54
4. Aptitude					.65	-.21	.58	.25	.65
5. Group Rank						-.14	.55	.11	.57
6. Absences							-.14	-.17	-.19
7. Words Taught								.62	.65
8. Phonics Taught									.58
9. Words Learned									
Mean (n=56)	74.89	.50	4.80	21.08	4.11	8.32	364.7	35.36	262.17
S.D.	3.70	.50	2.79	11.58	1.33	6.15	104.2	27.59	136.48

Note - Coefficients greater than .25 are significant at $p<.05$.

APPENDIX II - EGALITARIAN AND ELITIST CHARACTERISTICS

	INSTRUCTION		APTITUDE			IDEOLOGY	
Column	1	2	3	4	5	6	
Class							Criteria Met
			Egalitarian Classrooms				
2	1	.70	1	1/2	.81	Eg	Apt;Ideology
9	1	.92	0	1/2	1.03	Eg	Instruc;Apt;Ideol
11	1	.79	0	1/2	1.24	Eg	Instruc;Ideology
			Elitist Classrooms				
1	1	.90	0	3/3	1.53	El	Apt;Ideology
3	0	.56	0	2/2	1.38	El	Instruc;Apt;Ideol
8	0	.60	0	2/2	1.40	El	Instruc;Apt;Ideol
			Other Classrooms				
4	1	.81	0	3/6	1.10		Instruc(Egalit)
5	0	.75	0	1/2	1.00		Aptit(Egalit)
6	0	.82	0	1/2	1.10		Instruc(Egalit)
7	0	.50	0	1/2	1.20		Instruc(Elitist)
10	0	.47	0	1/2	1.14		Instruc(Elitist)
12	0	.72	0	2/2	1.96		Aptit(Elitist)

Explanation of Columns:

1) Number of pairs of groups receiving identical instruction in Words Taught.
2) Average proportion of one group's instruction of the next higher group's Words Taught, computed as $\frac{\sum (W_{g-1}/W_g)}{n_g - 1}$, where W_g is the Words Taught to a group, W_{g-1} represents the Words Taught to the next lower group, and n_g is the number of groups in the class.
3) Pairs of groups whose mean aptitudes reverses the order of the group ranks.
4) Number of gaps in mean aptitude between reading groups in a class that are greater than one standard deviation of the higher group's aptitude/total number of gaps in the class ($n_g - 1$).
5) Average distance between mean aptitude of groups, in group standard deviation units; computed as $\frac{\sum [(\bar{x}_g - \bar{x}_{g-1})/s_g]}{n_g - 1}$, where $\bar{x}_g$ is a group's mean aptitude, $\bar{x}_{g-1}$ is the mean aptitude of the next lower group, and s_g is the higher group's standard deviation of aptitude.
6) Ideology: Eg = egalitarian ideology; El = elitist ideology.

Note - The six remaining classes were not included in the egalitarian or elitist subsamples because they met only one criteria each. Class 12 shows the widest gaps between groups, and the instructional distinctions between groups are most pronounced in classes 7 and 10. The gaps between groups in mean aptitude are relatively small in class 5; a pair of groups received identical instruction in class 4; and in classes 4 and 6 lower groups were taught a relatively high proportion of higher group's words. None of these classes exhibited an ideological push in either direction.

Calculations are based on data from December.

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